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Notice of Allowability

Application No.

10/604,279

Examiner

Tuyen To

Applicant(s)

SMITH ET AL.

Art Unit

2825

11

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/22/2005.
2. ☒ The allowed claim(s) is/are 1-40.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


VUTHE SIEK
PRIMARY EXAMINER

DETAILED ACTION

1. This final office action is a response to the amendment and remarks/arguments filed on 11/22/2005. Claims 1-40 are pending.
2. The amended drawings have been approved.
3. There are errors in the amendment. On page 4, claim 15 is "currently amended " but was marked as "original" and on page 7, claims 24, is "original" but was marked as "currently amended". Appropriate action is required.
4. Applicant's remarks/arguments filed 11/22/2005 is considered persuasive and obviates all outstanding claim rejections. Accordingly, claims 1-40 are allowed.

EXAMINER'S AMENDMENT

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
6. Authorization for this examiner's amendment was given in a telephone interview with Frederick Gibb, III (Reg. No. 37629) on 01/23/2006.
7. The application's abstract has been amended as follow:

In the abstract, please insert: -- The disclosure presents a method of designing an integrated circuit having latches. The invention first prepares a logical design of logic devices and latches and then creates a physical design by positioning the logic devices and the latches within the integrated circuit based on the logical design. During the process of creating the physical design the invention eliminates redundant

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latches by combining latches which do not transition during the same clock cycle, latches which do not relate to the same logical function, latches which are in the same clock domain, and latches that are within a given physical proximity of each other. --

Allowable Subject Matter

8. **Claims 1-40** are allowable over the prior art of record.

9. The following is an examiner's statement of reasons for allowance:

Claims 1-7 are allowed because *the prior art of record does not teach or fairly suggest* a method of designing an integrated circuit having latches, the method comprising a combination of claim limitations, specially including:

eliminating redundant latches , wherein redundant latches comprise latches which do not transition during the same clock cycle; and

adding selecting logic to make outputs corresponding to eliminated redundant latches mutually exclusive to outputs corresponding to remaining latches.

Claims 8-13, 15-20, 21-23, and 34-40 are allowed because *the prior art of record does not teach or fairly suggest* a method of designing an integrated circuit having latches, the method comprising a combination of claim limitations, specially including:

adding selecting logic to make outputs corresponding to eliminated redundant latches mutually exclusive to outputs corresponding to remaining latches.

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Claim 14 is allowed because *the prior art of record does not teach or fairly suggest* a method of designing an integrated circuit having latches, the method comprising a combination of claim limitations, specially including:

adding selection logic connected to said latches, wherein said selection logic locks a non-active output to a known logical state when another output is active.

Claims 24-33 are allowed because *the prior art of record does not teach or fairly suggest* a method of designing an integrated circuit having latches, the method comprising a combination of claim limitations, specially including:

adding selection logic connected to said latches in said revised physical design, wherein said selection logic includes outputs equal in number to the number of latches in said initial physical design and said selection logic locks a non-active output to a known logical state when a corresponding output is active.

10. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen To whose telephone number is (571) 272-8319. The examiner can normally be reached on 9:00am-5:00pm.

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12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on (571) 272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuyen To

Patent Examiner

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VUTHE SIEK
PRIMARY EXAMINER

REPLACEMENT SHEET

Smith et al.

BUR920030010US1

Sheet 1 of 3

Approved
11
01/12/2006

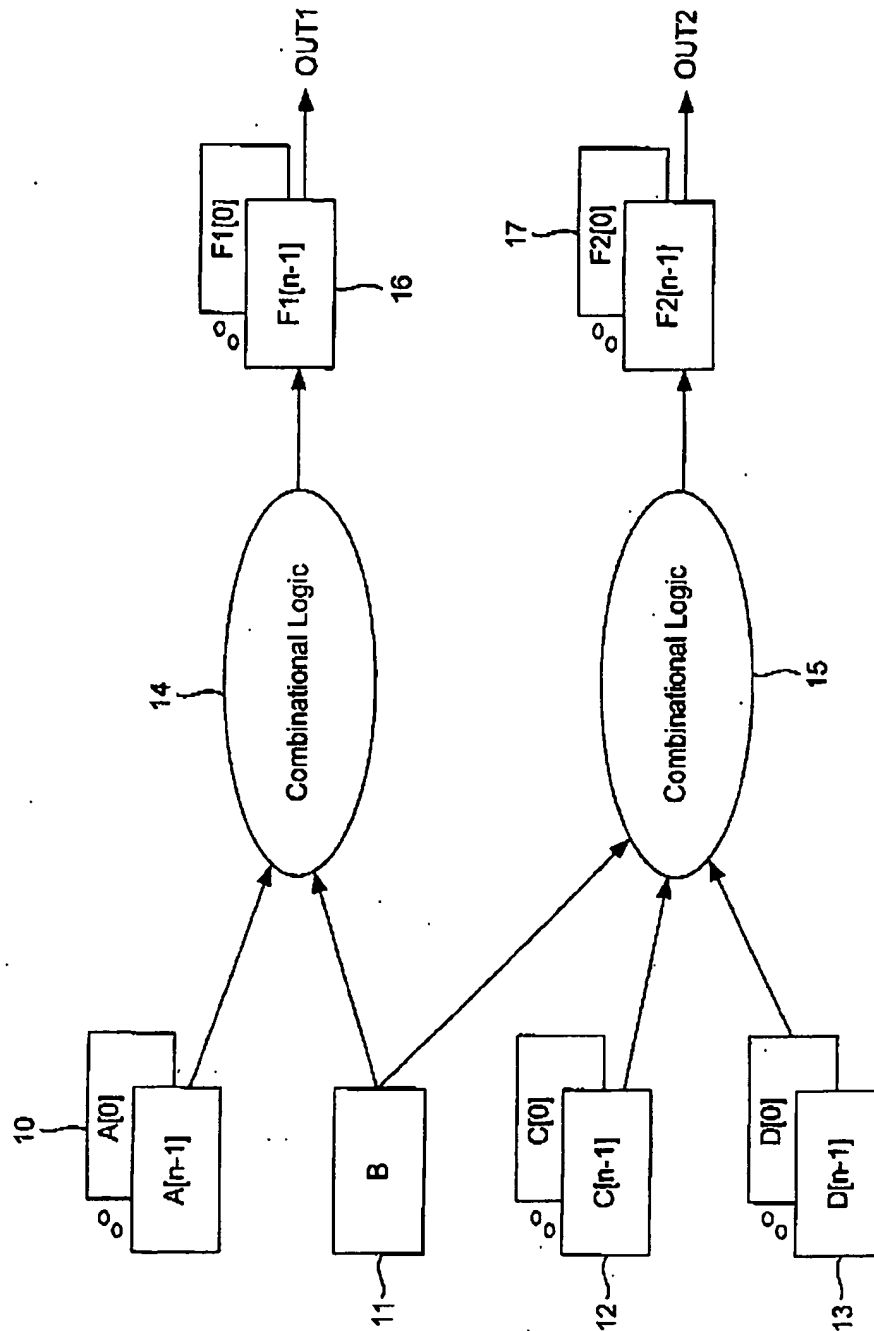


FIG. 1A

REPLACEMENT SHEET

Smith et al.

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Approved
11/12/2006

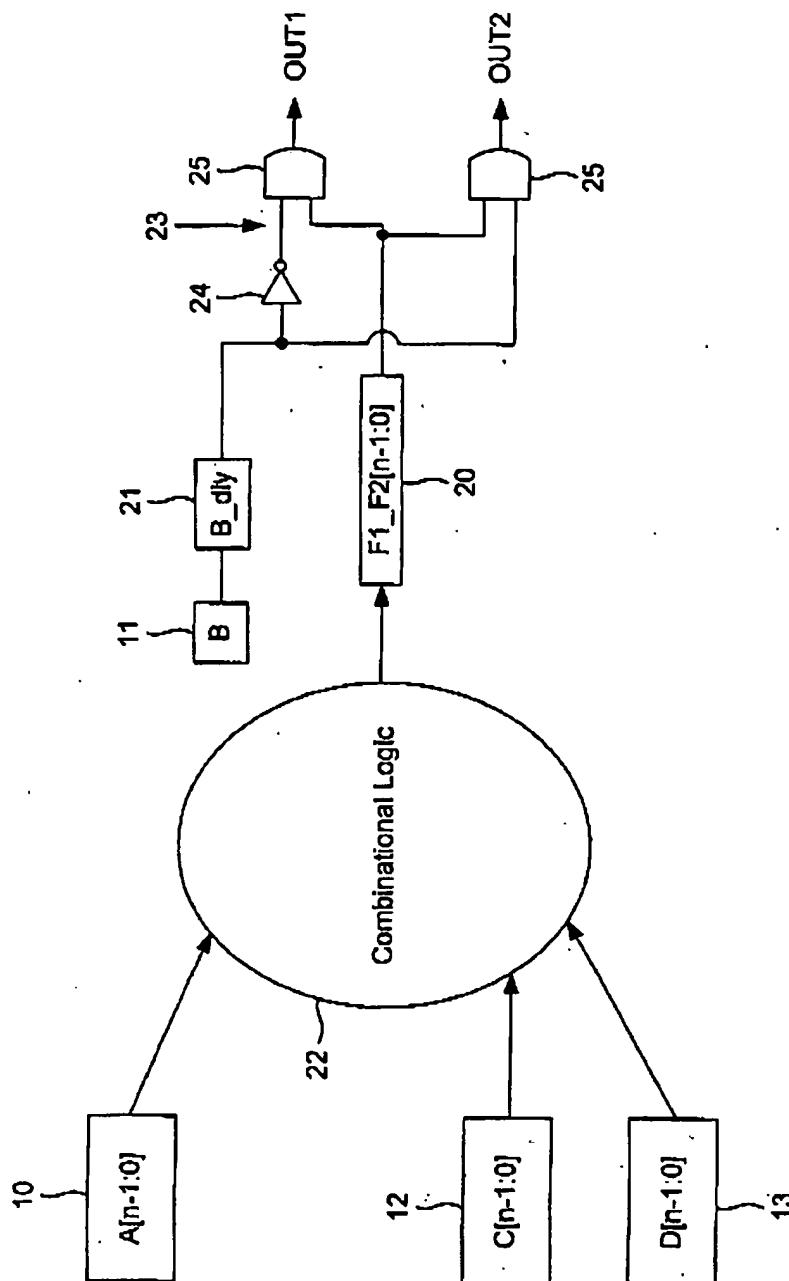


FIG. 1B

REPLACEMENT SHEET

Smith et al.

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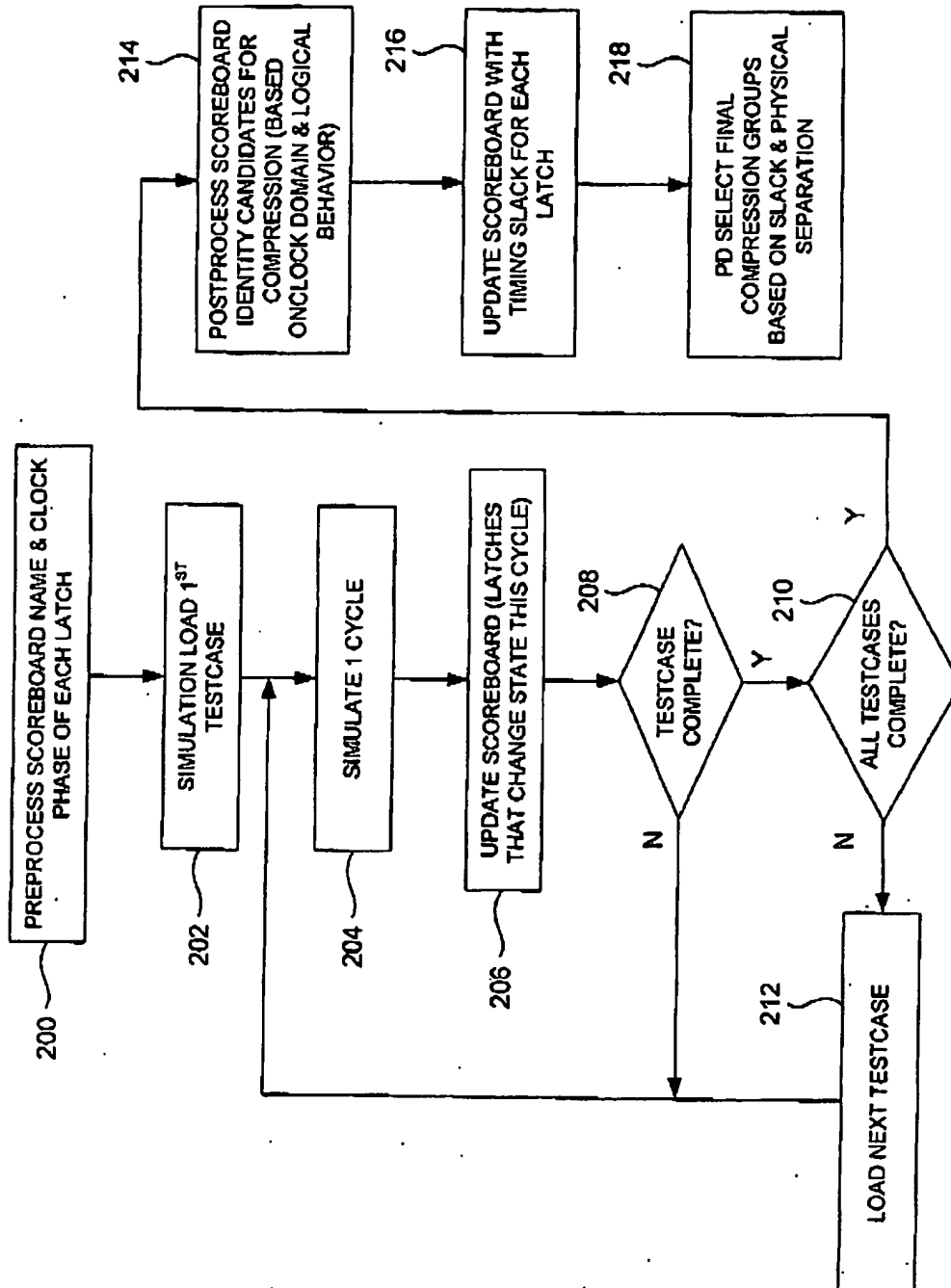


FIG. 2